

**NOSEMA GEOPHILI, sp. n., A MYXOSPORIDIAN PARASITE OF GEOPHILUS.**

BY HOWARD CRAWLEY.

On May 21, 1900, a specimen of *Geophilus* was taken in the Harvard Botanical Garden, at Cambridge, Mass. The intestine of this centipede was teased and crushed upon a slide, fixed in corrosive sublimate and stained with thionin. The preparation showed innumerable individuals of the vegetative stage of a coccidian, probably a species of *Eimeria*, and some 30-40 specimens of the parasite here figured and described.



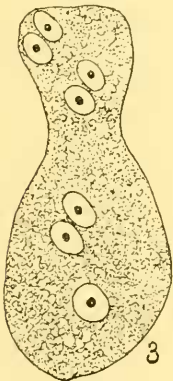
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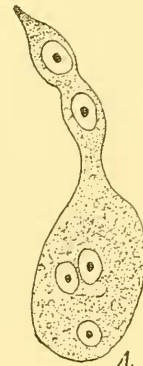
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Of these, the smallest, shown in figs. 1 and 2, were for the most part nearly oval cells, with occasionally a blunt prolongation at one end.

They ranged in length from 30 microns upward. There was no distinction to be made out between ectoplasm and endoplasm, the cell substance being essentially uniform. It stained rather deeply with thionin, was dense in structure and beset with numerous vacuoles. No definite membrane could be made out.



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These smaller bodies were mostly uninucleate, although in some the nucleus had already divided. The nuclei themselves were ellipsoidal bodies, with a faintly staining ground substance and a large and conspicuous karyosome. The ground substance was doubtless a liquid in the living animals. The karyosomes stained

intensely in thionin and were in almost every case vacuolated.

The larger specimens, shown in figs. 3 and 4, attained a length of 150-200 microns. Their protoplasm was much less dense than that of the smaller forms, and showed a spongy structure. There was no differentiation into ectoplasm and endoplasm. The nuclei were generally arranged in pairs, indicative of recent division, but the prepara-

tion showed none in the actual process. The nuclei of both large and small organisms were essentially alike.

The irregular form and multi-nucleate condition of this sporozoan places it in the Myxosporidia. Its occurrence as a free-living form in either the body-cavity or intestine of an arthropod seems to warrant placing it, at least provisionally, in the genus *Nosema*. The specific name *geophili* is appropriate in view of the host.

The observation is interesting in view of the fact that this is the first recorded case of a myxosporidian being found in a myriapod. It is also worthy of note that while *Geophilus* is thus shown to be parasitized by representatives of three orders of Sporozoa, infection is only occasional. Léger, describing *Rhopalonia geophili*, a gregarine, says that it is very rare and I have never yet encountered it. I have seen the unidentified coccidian mentioned above in one or two other hosts, but the myxosporidian in only this one case. This comparative immunity is doubtless due to the solitary habit of the centipede.